

Serial No.: 09/651,702

Filed: August 30, 2000

For: SUPERCRITICAL COMPOSITIONS FOR REMOVAL OF ORGANIC MATERIAL AND METHODS OF USING SAME

Remarks

The Office Action mailed February 27, 2002, has been received and reviewed. Claim 26 and 30 having been canceled, claims 19-25, 27, 29, and 31-32 having been amended, and claims 33-38 having been added, the pending claims are claims 19-25, 27-29, and 31-38.

A substitute drawing sheet is being submitted herewith in accordance with M.P.E.P. §§608.02(h) and 608.02(v) to correct obvious errors. Specifically, Figure 3 has been amended by deleting the reference sign "133" and properly placing the reference sign "128." Support for the amendment can be found, for example, in the specification and in Figure 2. A red ink mark-up of Figure 3 and a copy of Figure 3 as amended in the proposed amendment is enclosed herewith. The Formal Drawings being submitted herewith under 37 C.F.R. §1.85 include the proposed amendment to Figure 3.

The specification has been amended to correct a typographical error of a reference numeral. The amendment is fully supported by the specification at, for example, page 14, line 10 to page 15, line 24 and by Figures 2 and 3.

Independent claims 19, 25, and 27 have been amended to recite an "organic material removal composition comprising sulfur trioxide (SO₃) in a supercritical state," which is supported by the specification at, for example, page 8, lines 16-18, and the originally filed claims (e.g., claims 21-22). The claims have also been amended to correct grammatical errors, to correct dependencies, and to modify and/or delete Markush groups.

New claims 33-35 are supported by the specification at, for example, page 8, lines 19-26. New claims 36-38 are supported by the specification at, for example, page 9, lines 20-28.

Reconsideration and withdrawal of the rejections are respectfully requested.

Declaration

The Examiner indicated that the Declaration was allegedly defective for failing to provide both a residence for the inventor and a mailing or post office address. Although the address listed on the Declaration is both the residence and the post office address, Applicant is

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submitting herewith a Supplemental Declaration indicating that the inventor's mailing address and residence address are the same, thus rendering any objection to the Declaration moot.

Objection to the Drawings

The Examiner objected to the drawings as allegedly failing to comply with 37 C.F.R. §1.84(p)(5) because a reference sign "33" in Figure 3 is not mentioned in the description. Applicant respectfully points out that Figure 3 does not include a reference sign "33." However, Figure 3 has been amended by deleting the reference sign "133" and properly placing the reference sign "128," and the objection is rendered moot.

Rejections under 35 U.S.C. §112, Second Paragraph

The Examiner rejected claims 29 and 31 under 35 U.S.C. §112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

The Examiner alleged that the language "a ratio of the first component to the second component in the supercritical state" is unclear. Applicant respectfully disagrees. However, in the interest of expediting the prosecution of the present application, claim 29 has been amended to delete the language "in the supercritical state," and the rejection is rendered moot.

The Examiner also alleged that the recitation of "preferably in the range of" rendered claim 31 indefinite. Applicant respectfully disagrees. However, in the interest of expediting the prosecution of the present application, claim 31 has been amended to delete the language "preferably in the range of," and the rejection is rendered moot.

Applicant respectfully requests that the rejections under 35 U.S.C. §112, second paragraph, be reconsidered and withdrawn.

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Rejections under 35 U.S.C. §102

The Examiner rejected claims 19, 20, and 25 under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Pat. No. 4,944,837 (Nishikawa et al.); claims 19, 20, 23, 25, and 27-29 as allegedly being anticipated by U.S. Pat. No. 5,482,211 (Chao et al.); and claims 19, 20, 23, 25, and 27-29 as allegedly being anticipated by U.S. Pat. No. 5,013,366 (Jackson et al.). Applicants respectfully submit that the claims as amended are patentable over the art of record.

All the independent claims of the present invention (e.g., claims 19, 25, and 27) recite an organic material removal composition including sulfur trioxide (SO_3) in a supercritical state. Applicant respectfully submits that none of the documents of record disclose or suggest an organic material removal composition including sulfur trioxide (SO_3) in a supercritical state.

Applicant respectfully requests that the rejection under 35 U.S.C. §102(b) be reconsidered and withdrawn.

Rejection under 35 U.S.C. §102(e)

The Examiner rejected claims 19-21, 23-28, 30 and 32 under 35 U.S.C. §102(e) as being anticipated by U.S. Pat. No. 6,149,828 (Vaarstra). Applicants respectfully disagree.

A rejection under 35 U.S.C. §102(e) is only available when the inventive entity of the application is different than that of the reference. *See M.P.E.P §706.02(a).* Applicant notes that the inventive entity of the present application, Brian A. Vaarstra, is the same as that of the cited document, U.S. Pat. No. 6,149,828 (Vaartstra). Thus, a rejection under 35 U.S.C. §102(e) based on U.S. Pat. No. 6,149,828 (Vaarstra) is improper.

Applicant respectfully requests that the rejection under 35 U.S.C. §102(e) be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

The Examiner rejected claims 21, 22, 24, 26, and 30-32 under 35 U.S.C. §103(a) as being unpatentable over U.S. Pat. No. 5,013,366 (Jackson et al.) as applied to claims 20, 23,

25, or 27 above, and further in view of U.S. Pat. No. 5,037,506 (Gupta et al.). Claims 26 and 30 having been canceled, Applicant respectfully disagrees.

Jackson et al. is deficient in failing to suggest or disclose an organic material removal composition including sulfur trioxide (SO_3), and Gupta et al. provides nothing to correct this deficiency. Applicant respectfully submits that this rejection is rendered moot in view of the amendments made herein. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) are respectfully requested. Insofar as these rejections apply to the presently pending claims, they are respectfully traversed.

As the Examiner pointed out, Jackson et al. do not teach the use of a supercritical fluid containing SO_3 to remove contaminants from a substrate. However, the Examiner improperly combined Gupta et al. with Jackson et al. It is respectfully submitted that this is improper because Gupta et al. also fail to teach the use of a supercritical fluid containing sulfur trioxide (SO_3) to remove contaminants from a substrate.

Gupta et al. disclose a method of removing organic materials, such as implant and deep UV hardened photoresist, from a substrate by using sulfur trioxide. Gupta et al. generate SO_3 vapor from commercially available stabilized or unstabilized, liquid or solid, sulfur trioxide. The SO_3 vapor is then used to remove the organic material from the substrate. While SO_3 has a critical temperature of 218.3°C and a critical pressure of 83.8 atmospheres (e.g., page 7, lines 19-21 of the present specification), Gupta et al. teach that the use of a maximum temperature of up to 150°C (column 4, line 46-47) apparently under atmospheric pressure conditions. Gupta makes no mention of conducting the removal process under pressurized conditions. The conditions recited by Gupta et al. are clearly inadequate to produce a supercritical SO_3 fluid.

Neither Jackson et al., Gupta et al., or a combination thereof, teach or suggest the use of a composition including SO_3 in a supercritical state. Furthermore, there is no teaching or suggestion in Jackson et al., Gupta et al., or a combination thereof, that SO_3 would be compatible in the preferred mixtures described herein, particularly under supercritical conditions.

Applicant respectfully requests that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

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Information Disclosure Statement

Applicant submitted an Information Disclosure Statement to the U.S. Patent and Trademark Office on March 5, 2002. Copies of the Information Disclosure Statement, Form 1449, and date-stamped itemized postcard from the filing of same are attached herewith for the Examiner's convenience. Pursuant to the provisions of M.P.E.P. §609, Applicant requests that a copy of the Form 1449, marked as being considered and initialed by the Examiner, be returned with the next Official Communication.

The Examiner is invited to contact Applicant's Representatives at the below-listed telephone number if further assistance is required.

Amendment and Response

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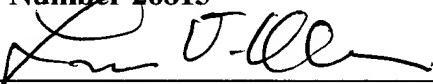
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Summary

It is respectfully submitted that all the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicant's Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Micron Technology, Inc.
By
Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612) 305-1220
Facsimile: (612) 305-1228
Customer Number 26813

May 28, 2002
Date

By: 
Loren D. Albin
Reg. No. 37,763
Direct Dial (612)305-1225

CERTIFICATE UNDER 37 CFR §1.10:

"Express Mail" mailing label number: EL888273017US Date of Deposit: 28 May 2002

The undersigned hereby certifies that this paper is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

By: Jackie Torborg
Name: JACKIE TORBORG
